

IN THE CLAIMS:

1-45 (Canceled).

46. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising crystalline silicon and having at least source and drain regions and a channel forming region;

a gate insulating film over the channel forming region; and

a gate electrode formed over the gate insulating film;

an interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a color filter having a flattened surface formed over the interlayer insulating film and the conductive layer; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

47. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and
a gate electrode adjacent to the gate insulating film,
an interlayer insulating film formed over the first thin film transistor;
a conductive layer formed over the interlayer insulating film and electrically connected to one
of source and drain regions of the first thin film transistor;
a color filter having a flattened surface formed over the interlayer insulating film and the
conductive layer; and
a pixel electrode formed over the color filter and electrically connected to the conductive
layer.

48. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor
comprising:

a semiconductor film comprising crystalline silicon and having at least source and
drain regions and a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film
interposed therebetween;

an interlayer insulating film formed over the first thin film transistor, the interlayer
insulating film comprising at least a material selected from the group consisting of silicon nitride,
silicon oxide and nitrated silicon oxide;

a color filter having a flattened surface formed over the interlayer insulating film; and

a pixel electrode formed over the color filter,
wherein the pixel electrode is electrically connected to the first thin film transistor.

49. (previously presented) A device according to claim 48, wherein the gate electrode is located over the channel forming region.

50. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising silicon and having at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor, the interlayer insulating film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter having a flattened surface formed over the interlayer insulating film; and

a pixel electrode formed over the color filter.

51. (previously presented) A device according to claim 50, wherein the gate electrode is located over the channel forming region.

52. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising crystalline silicon and having at least source and drain regions and a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode formed adjacent to the channel forming region with the gate insulating film interposed therebetween;

a first interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the first interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a ~~second interlayer insulating~~ passivation film formed over the conductive layer, the ~~second interlayer insulating~~ passivation film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter having a flattened surface formed over the ~~second interlayer insulating~~ passivation film; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

53. (previously presented) A device according to claim 52, wherein the gate electrode is located over the channel forming region.

54. (currently amended) A semiconductor device comprising:

- a first thin film transistor formed over a substrate, the first thin film transistor comprising:
 - a semiconductor film comprising silicon and having at least a channel forming region;
 - a gate insulating film adjacent to the channel forming region; and
 - a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;
- a first interlayer insulating film formed over the first thin film transistor;
- a conductive layer formed over the first interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;
- a ~~second interlayer insulating~~ passivation film formed over the conductive layer, the ~~second interlayer insulating~~ passivation film comprising at least a material selected from the group consisting of silicon nitride and nitrated silicon oxide;
- a color filter having a flattened surface formed over the ~~second interlayer insulating~~ passivation film; and
- a pixel electrode formed over the color filter and electrically connected to the conductive layer.

55. (currently amended) A device according to claim 54, wherein the gate electrode is located over the channel forming region.

56. (currently amended) A semiconductor device comprising:

- a first thin film transistor formed over an insulating surface, the first thin film transistor

comprising:

a semiconductor film comprising :

a channel forming region; and

~~LDD regions in contact with the channel forming region; and~~

a source region and a drain region in contact with the LDD regions;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the gate insulating film;

an interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the interlayer insulating film and electrically connected to one of source and drain regions of the first thin film transistor;

a color filter formed over the interlayer insulating film ~~and~~ , the conductive layer and the first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

57. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising:

a channel forming region; and

~~LDD regions in contact with the channel forming region; and~~

a source region and a drain region in contact with the LDD regions;

a gate insulating film adjacent to the channel forming region; and
a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor, the interlayer insulating film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter formed over the interlayer insulating film and the first thin film transistor; and
a pixel electrode formed over the color filter.

58. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising:

a channel forming region; and

~~LDD regions in contact with the channel forming region; and~~

a source region and a drain region in contact with the LDD regions;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

a first interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the first interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a ~~second interlayer insulating~~ passivation film formed over the conductive layer, the ~~second interlayer insulating~~ passivation film comprising at least a material selected from the group consisting of silicon nitride and nitrated silicon oxide;

a color filter formed over the ~~second interlayer insulating~~ passivation film and the first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

59. (currently amended) A semiconductor device comprising:

~~a pixel matrix circuit comprising;~~

a first thin film transistor comprising:

a semiconductor film comprising at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the interlayer insulating film and electrically connected to one of source and drain regions of the first thin film transistor;

a color filter formed over the interlayer insulating film ~~and~~ , the conductive layer and the first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer[[:]]

~~a driver circuit comprising a second thin film transistor,~~

wherein the pixel matrix circuit and the driver circuit are over a same substrate.

60. (currently amended) A semiconductor device comprising:

~~a pixel matrix circuit comprising:~~

a first thin film transistor comprising:

a semiconductor film comprising silicon and having at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor, the interlayer insulating film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter formed over the interlayer insulating film and the first thin film transistor; and

a pixel electrode formed over the color filter[[]]

~~a driver circuit comprising a second thin film transistor,~~

~~wherein the pixel matrix circuit and the driver circuit are over the same substrate.~~

61. (currently amended) A semiconductor device comprising:

~~a pixel matrix circuit comprising:~~

a first thin film transistor comprising:

a semiconductor film comprising silicon and having at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

a first interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the first interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a ~~second interlayer insulating~~ passivation film formed over the conductive layer, the ~~second interlayer insulating~~ passivation film comprising at least a material selected from the group consisting of silicon nitride and nitrated silicon oxide;

a color filter formed over the ~~second interlayer insulating~~ passivation film and the first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer[[]]

~~a driver circuit comprising a second thin film transistor,~~

~~wherein the pixel matrix circuit and the driver circuit are over the same substrate.~~

62. (previously presented) A device according to claim 56, wherein the semiconductor film comprises crystalline silicon.

63. (previously presented) A device according to claim 57, wherein the semiconductor film comprises crystalline silicon.

64. (previously presented) A device according to claim 58, wherein the semiconductor film comprises crystalline silicon.

65. (previously presented) A device according to claim 59, wherein the semiconductor film comprises crystalline silicon.

66. (previously presented) A device according to claim 60, wherein the semiconductor film comprises crystalline silicon.

67. (previously presented) A device according to claim 61, wherein the semiconductor film comprises crystalline silicon.

68. (currently amended) A device according to claim 46, wherein the semiconductor device further comprising:

a resin film over the color filter;

~~a first~~ an electrode over the organic resin film; and

an oxide film of the first electrode in direct contact with at least a portion of a surface of the first electrode,

wherein the pixel electrode is in direct contact with at least a portion of the oxide film, and

wherein a storage capacitor comprises the ~~first~~ electrode and the ~~second~~ pixel electrode with the oxide film interposed therebetween.

69. (currently amended) A device according to claim 48, wherein the semiconductor device further comprising:

a resin film over the color filter;

~~a first~~ an electrode over the organic resin film; and

an oxide film of the first electrode in direct contact with at least a portion of a surface of the first electrode,

wherein the pixel electrode is in direct contact with at least a portion of the oxide film, and

wherein a storage capacitor comprises the first electrode and the ~~second~~ pixel electrode with the oxide film interposed therebetween.

70. (currently amended) A device according to claim 52, wherein the semiconductor device further comprising:

a resin film over the color filter;

~~a first~~ an electrode over the organic resin film; and

an oxide film of the first electrode in direct contact with at least a portion of a surface of the first electrode,

wherein the pixel electrode is in direct contact with at least a portion of the oxide film, and

wherein a storage capacitor comprises the first electrode and the ~~second~~ pixel electrode with the oxide film interposed therebetween.

71. (New) A device according to claim 46, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

72. (New) A device according to claim 48, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

73. (New) A device according to claim 52, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

74. (New) A device according to claim 56, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

75. (New) A device according to claim 57, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

76. (New) A device according to claim 58, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

77. (New) A device according to claim 46, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

78. (New) A device according to claim 47, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

79. (New) A device according to claim 48, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

80. (New) A device according to claim 50, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

81. (New) A device according to claim 52, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

82. (New) A device according to claim 54, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

83. (New) A device according to claim 56, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

84. (New) A device according to claim 57, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

85. (New) A device according to claim 58, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

86. (New) A device according to claim 59, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and
wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

87. (New) A device according to claim 60, further comprising a driver circuit comprising a
second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and
wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

88. (New) A device according to claim 61, further comprising a driver circuit comprising a
second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and
wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.
